

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the subject application.

1. (Previously Presented) A medical apparatus guiding system comprising:

a medical apparatus main body adapted to be inserted in a body cavity and having an approximately cylindrical outer shape;

a thrust generating mechanism including a spiral structure portion provided on a side surface of the medical apparatus main body and a rotation driving unit for rotating the spiral structure portion around a substantially cylindrical shaft of the medical apparatus main body, wherein the rotation driving unit includes:

a magnet provided to the medical apparatus main body and arranged with a magnetic pole direction oriented toward a direction substantially perpendicular to the substantially cylindrical shaft of the medical apparatus main body; and

a magnetic field generating device for generating a magnetic field in an arbitrary direction;

an information providing unit comprising at least one of a storing unit for storing an advancing direction of the medical apparatus, a direction detecting unit for detecting the direction of the medical apparatus main body, and magnetic pole detecting means for detecting a direction of a magnetic pole of the magnet;

an input unit which supplies a signal indicating a thrust generating direction of the thrust generating mechanism; and

a control unit which repeatedly performs, at every predetermined control cycle, a control for generating a rotating magnetic field from the magnetic field generating device and

generating, from the magnetic field generating device, a rotating magnetic field for changing a direction of the medical apparatus main body, based on information from the information providing unit and the input unit.

2. (Currently Amended) A medical apparatus guiding system according to Claim 1, wherein the control unit continuously changes [[the]] a thrust generating state of the thrust generating mechanism.

3. (Previously Presented) A medical apparatus guiding system according to Claim 1, wherein the input unit inputs a change amount of the thrust generating mechanism in the thrust generating direction.

4. (Cancelled)

5. (Previously Presented) A medical apparatus guiding system according to Claim 1, wherein the input unit is an input unit which inputs a thrust generating amount of the thrust generating mechanism.

6. (Previously Presented) A medical apparatus guiding system according to Claim 1, wherein the input unit has an automatic return mechanism.

7. (Cancelled)

8. (Currently Amended) A medical apparatus guiding system according to Claim 1, wherein the medical apparatus main body has a diagnosis/cure device ~~[[is]]~~ selected from a group consisting of a medication system and a body fluid extracting system.

9. (Original) A medical apparatus guiding system according to Claim 1, wherein the medical apparatus main body is a capsule medical apparatus.

10. (Cancelled)

11. (Cancelled)

12. (Currently Amended) A medical apparatus guiding system according to Claim 5, ~~wherein the thrust generating mechanism has at least one device selected from a group consisting of a magnetic field generating device, an electric field generating device, and a motor, and the thrust generating amount is controlled by any of a frequency of a rotating magnetic field, a frequency of a rotating electric field, and a rotating frequency of the motor, and any combination of devices thereof~~ wherein the thrust generating amount of the thrust generating mechanism is controlled by a frequency of a rotating magnetic field generated by the magnetic field generating device.

13. (Previously Presented) A medical apparatus guiding system according to Claim 3, further comprising: an image pick-up device arranged to the medical apparatus main body; a display device which displays an image picked up by the image pick-up device; and an interface which

allocates an operating direction of the input unit to the up, down, right, and left sides of the image displayed on the display device,

the medical apparatus guiding system further comprising image rotation correcting means which cancels the rotation of the image generated upon rotating the medical apparatus main body by the rotating magnetic field,

wherein the image processed by the image rotation correcting means is displayed on the display means.

14. (Previously Presented) A medical apparatus guiding system according to Claim 3, further comprising: an image pick-up device arranged to the medical apparatus main body; a display device which displays an image picked up by the image pick-up device; and an interface which allocates an operation direction of the input unit to the up, down, right, and left sides of the image displayed on the display device.

15. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, wherein the input unit is an input unit which inputs a rotating frequency of the rotating magnetic field generated by the magnetic field generating device.

16. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, wherein the input unit is an input unit which inputs a rotating direction of the rotating magnetic field generated by the magnetic field generating device.

17. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, wherein the input unit is an input unit which inputs a change amount of the direction of the rotating magnetic field generated by the magnetic field generating device.

18. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, further comprising: an image pick-up device arranged to the medical apparatus main body; a display device which displays an image picked up by the image pick-up device; and an interface which allocates an operation direction of the input unit to the up, down, right, and left sides of the image displayed on the display device.

19. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, further comprising: an image pick-up device arranged to the medical apparatus main body; a display device which displays an image picked up by the image pick-up device; an interface which allocates an operation direction of the input unit to the up, down, right, and left sides of the image displayed on the display device; and image rotation correcting means which cancels the rotation of the image generated upon rotating the medical apparatus main body by the rotating magnetic field, wherein the image processed by the image rotation correcting means is displayed on the display device.

20. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, wherein upon changing a rotating frequency of the medical apparatus main body, the control unit continuously changes the rotating frequency of the rotating magnetic field.

21. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, wherein upon changing the strength of the magnetic field generated from the magnetic field generating device, the control unit controls strength of the magnetic field so that it is continuously changed.

22. (Cancelled)

23. (Cancelled)

24. (Currently Amended) A medical apparatus guiding system according to Claim [[4]] 1, wherein the information providing unit comprises at least two or more of the storing unit, the direction detecting unit, and the magnetic pole detecting means, and the control unit changes the information providing unit based on the control history.

25-42. (Cancelled)

43. (Currently Amended) A medical apparatus guiding system according to Claim [[11]] 1, wherein the thrust generating mechanism is a motor.

44. (Currently Amended) A medical apparatus guiding system according to Claim [[11]] 1, further comprising: a power supply unit which is extracorporeally arranged; and a power transmitting unit which connects the power supply unit and the thrust generating mechanism.

45-51. (Cancelled)

52. (Withdrawn) A control method of a medical apparatus guiding system comprising:

a step of reading an instructing signal in a thrust generating direction;

a step of obtaining a control signal of a thrust generating mechanism until an arbitrary time;

a step of writing, to a storing unit, a state of the thrust generating mechanism after the arbitrary time; and

a step of transmitting the control signal to the thrust generating mechanism and driving the thrust generating mechanism.

53. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 52, further comprising:

a step of reading, from the storing unit, the state of the thrust generating mechanism;

a step of reading the instructing signal in the thrust generating direction;

a step of obtaining the control signal of the thrust generating mechanism until the arbitrary time;

a step of writing, to the storing unit, the state of the thrust generating mechanism after the arbitrary time; and

a step of transmitting the control signal to the thrust generating mechanism and driving the thrust generating mechanism.

54. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 53, wherein at the time at which the control signal is transmitted to the thrust generating mechanism and the thrust generating mechanism is driven,

the step of reading the state of the thrust generating mechanism from the storing unit is restarted.

55. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 52, further comprising:

a step of detecting the direction of the medical apparatus main body;

a step of reading the instructing signal in the thrust generating direction;

a step of obtaining the control signal of the thrust generating mechanism until the arbitrary time; and

a step of transmitting the control signal to the thrust generating mechanism and driving the thrust generating mechanism.

56. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 55, wherein at the time at which the control signal is transmitted to the thrust generating mechanism and the thrust generating mechanism is driven,

the step of detecting the direction of the medical apparatus main body is restarted.

57. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 52, further comprising:

a step of detecting the direction of the medical apparatus main body;

a step of reading an input signal from the input unit;
a step of obtaining a magnetic field generating signal until the arbitrary time,
which is generated by the magnetic field generating device based on the direction of the medical
apparatus main body and the input signal from the input unit; and
a step of transmitting the magnetic field generating signal to the magnetic field
generating device and driving the thrust generating device.

58. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 57,
wherein during the step of transmitting the magnetic field generating signal to the magnetic field
generating device and driving the magnetic field generating device, the step of detecting the
direction of the medical apparatus main body is restarted.

59. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 52,
further comprising:

a step of detecting the direction of the medical apparatus main body;
a step of detecting the direction of a magnetic pole of a magnet arranged to the
medical apparatus main body;
a step of reading an input signal from the input unit;
a step of obtaining a magnetic field generating signal until the arbitrary time,
which is generated by the magnetic field generating device based on the direction of the medical
apparatus main body, the direction of the magnetic pole of the magnet arranged to the medical
apparatus main body and the input signal from the input unit; and

a step of transmitting the magnetic field generating signal to the magnetic field generating device and driving the magnetic field generating device.

60. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 59, wherein during the step of transmitting the magnetic field generating signal to the magnetic field generating device and driving the magnetic field generating device,

the step of detecting the direction of the medical apparatus main body is restarted.

61. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 52, further comprising:

a step of reading the state of the magnetic field generating device from the storing unit;

a step of detecting the direction of the medical apparatus main body;

a step of detecting the direction of a magnetic pole of a magnet arranged to the medical apparatus main body;

a step of reading an input signal from an input unit;

a step of obtaining a magnetic field generating signal until the arbitrary time, which is generated by the magnetic field generating device based on the direction of the medical apparatus main body, the direction of the magnetic pole of the magnet arranged to the medical apparatus main body and the input signal from the input unit;

a step of storing the state of the magnetic field generating device after the arbitrary time to the storing unit; and

a step of transmitting the magnetic field generating signal to the magnetic field generating device and driving the magnetic field generating device.

62. (Withdrawn) A control method of a medical apparatus guiding system according to Claim 61, wherein during the step of transmitting the magnetic field generating signal to the magnetic field generating device and driving the magnetic field generating device, the step of detecting the direction of the medical apparatus main body is restarted.